CLAIMS:

1. A system for magnetic resonance imaging, comprising:
- a substantially cylindrical cavity (2);
- wherein the cavity (2) has an axis of symmetry in the direction of a z-axis;
- wherein a subject (3) can be examined within the cavity;
- wherein the subject (3) has a conductance which is not isotropic in an xy-plane which is perpendicular to the z-axis;

characterized in that an electrically conductive material (4) is placed within the cavity (2), wherein the material (4) has a conductivity and a thickness which render the total conductance in the xy-plane within the cavity to be isotropic.

2. A system according to claim 1, characterized in that the system is a magnetic resonance imaging apparatus or a radio frequency (RF) coil for magnetic resonance imaging.

3. A system according to claim 2, characterized in that at least a part of the material (4) is attached to an inner wall (5) of the cylindrical cavity (2).

4. A system according to claim 1, characterized in that at least a part of the material (4) is attached to a bottom (6) of a substantially plane surface (7) on which the subject (3) can be positioned.

5. A system according to claim 4, characterized in that the substantially plane surface (7) is part of a patient's bed.

6. A system according to claim 3, 4 or 5, characterized in that the electrically conductive material (4) is removably attached within the cavity (2).

7. A system according to claim 1, characterized in that the material (4) is substantially above and below a substantially plane surface (7) on which the subject (3) can be positioned.

8. A system according to claim 1, characterized in that the material (4) has a planar resistance between about 5 Ω/□ and about 2Ω.

9. A system according to claim 7, characterized in that the material above the subject (3) has a planar resistance between about 5 Ω/□ and about 10Ω.

10. A system according to claim 7, characterized in that the material below the subject (3) has a planar resistance between about 12 Ω/□ and about 1Ω.

11. A system according to claim 1, characterized in that the material (4) is a sheet (8) being covered by a conductive layer (9).

12. A system according to claim 11, characterized in that only predetermined parts of the sheet (8) are covered by a conductive layer (9).

13. A system according to claim 1, characterized in that it is arranged to operate with magnetic fields at or above 3 tesla.